Remarks

In view of the above amendments and the following remarks, reconsideration of the outstanding office action is respectfully requested.

Initially, applicants would like to thank Examiner Miggins for the telephone interview with the undersigned attorney on December 29, 2003. The substance of the interview is summarized below. Applicants note that no interview summary has been received since the occurrence of the above-noted interview. Applicants also note that an initialed copy of the PTO-1449 form submitted August 21, 2001 has not been received.

Claims 1-6, 9-26, and 29-36 have been canceled without prejudice. New claims 90-107 correspond substantially to the canceled claims and depend from independent claim 37. It was suggested by Examiner Miggins that applicants present a single generic product claim rather than multiple subgeneric independent claims. This is reflected in the present claim set. Descriptive support for the subject matter of claim 108 appears throughout the specification (*see*, *e.g.*, description of carbon source gas at page 9, lines 26-28; and analysis of carbon nanotubes such as at page 27 of the application, discussing Figure 9A).

As discussed during the interview, the present invention relates to a novel process and novel products formed by that process. The process overcomes several deficiencies in the prior art, one of which is that a temperature of at least 700°C had previously been required to induce carbon nanotube growth. Unfortunately, this high temperature requirement limits substrate selection. This deficiency in the art is apparent when considering the types of glass employed in flat panel displays. Of glasses used in flat panel displays, a glass produced by Corning Incorporated (Corning, New York) has the highest known glass deformation or strain point temperature of 666°C. Other types of glass that have strain point temperatures of less than 700°C include, for example, (1) the NA-35/NA-40 alumino silicate glasses available from HOYA Optics (strain point of 650°C) (*see* attached Exhibit 1), the Borofloat® borosilicate glass available from Präzisions Glas & Optik GmbH (strain point of 518°C) (*see* attached Exhibit 2), the 7059 and 7059F barium-borosilicate glasses available from Präzisions Glas & Optik GmbH (strain point of 593°C) (*see* attached Exhibit 3), and the 1737 low alkali glass available from Präzisions Glas & Optik GmbH (strain point of 666°C) (*see* attached Exhibit 4). The glasses described in the above-noted exhibits 1 and 4 are particularly directed for flat panel display applications. Thus, at above 700°C, these types of glass substrates will deform and, as a result, inhibit

aligned carbon nanotube growth. The present invention overcomes this deficiency by affording growth of carbon nanotubes directly on a substrate whose strain or melting point temperature is between about 300°C and 700°C. As a result, products containing carbon nanotubes that were not previously available, such as flat panel displays, can be prepared with the present invention.

The rejection of claims 37 under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 5,547,343 to Ajayan et al. ("Ajayan") is respectfully. It appears to be the position of the U.S. Patent and Trademark Office ("PTO") that Ajayan inherently teaches all of the limitation of claim 37.

As discussed during the interview, Ajayan fails to teach, either literally or inherently, a substrate having a strain point or melting point temperature within the claimed range ("between about 300°C and 700°C"). The PTO in prior office actions had cited to Example 12 and Figure 3 of Ajayan to support the inherency rejection, but now cites to Example 11 and Figure 2 to support the inherency rejection. Neither example inherently teaches the presently claimed invention. While Example 12 and Figure 3 of Ajayan illustrate a plurality of nanometer sized carbon tubules enclosing gadolinium and cobalt, which are arranged in an array on a glass substrate (*see* col. 12, lines 50-53), Example 11 and Figure 2 of Ajayan illustrate a nanometer sized carbon nanotubes enclosing lead that is arranged on an undefined substrate to provide contact between two electrodes (*see* col. 11, line 48 to col. 12, line 13). With respect to Example 11, the PTO now cites to post-alignment treatment of the carbon nanotubes (for purposes of introducing the lead into the carbon nanotubes) as evidence that the substrate has a strain point or melting point temperature of between 300°C and 700°C. It does not follow that the post-alignment treatment of substrate and nanotubes necessarily indicates that the substrate has a strain point or melting point temperature within the presently claimed range.

The standard for determining inherency, as adopted by the Federal Circuit in *Continental Can Co. USA, Inc. v. Monsanto Co.*, is as follows:

> Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing *may* result from a given set of circumstances is not sufficient. If, however, the disclosure is sufficient to show that the natural result flowing from the operation as taught would result in the performance of the questioned function, it seems to be well settled that the disclosure should be regarded as sufficient.

948 F.2d 1264, 1268-69, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991) (emphasis in original) (citing *In re Oelrich*, 666 F.2d 578, 581 (CCPA 1981)). Applicants submit that Ajayan

leaves much open to speculation as to whether the undefined substrate, illustrated in Figure 2 and described in Example 11 thereof, necessarily possesses the claimed strain point or melting point temperature. After all, different substrates will have different characteristics, including strain point and melting point temperatures (i.e., the substrate in Example 11 could have a strain point temperature greater than 1000°C and an even higher melting point temperature). Because Ajayan neither identifies the contents of the substrate nor subjects the substrate in Example 11 to heating that illustrates its strain point or melting point temperature, there is no basis to conclude that the substrate necessarily has a strain point or melting point temperature within the claimed range. That the substrate *could possibly* have a strain point or melting point temperature within the claimed range, however, is irrelevant. *See In re Oelrich*, 666 F.2d 578, 581, 212 USPQ 323, 326 (CCPA 1981) (holding that inherency must flow as a necessary conclusion from the prior art, not simply a possible one).

For this reason, the rejection of claim 37 is improper and should be withdrawn.

The rejection of claim 78 under 35 U.S.C. § 102(e) as anticipated by U.S. Patent No. 5,726,524 to Debe ("Debe") is respectfully traversed.

Debe teaches an electron field emission display including an electrode comprising as cathode a layer comprising a dense array of discrete solid microstructures disposed on at least a portion of one or more surfaces of a substrate, with at least a portion of the microstructures being conformally overcoated with one or more layers of an electron emitting material (Debe, col. 2, lines 39-48). Debe teaches using organic and inorganic materials (including glasses, ceramics, metals, and semiconductors) as substrate materials (Debe, col. 8, lines 27-30). The microstructures are formed of an organic material, which is deposited as a thin layer onto the substrate and then annealed to form microstructures thereon (Debe, col. 8, lines 12-21 and 50-61). Debe lists a number of polymeric and pre-polymeric organic materials at col. 8, line 62 to col. 9, line 11; however, Debe notes that the microstructures are not formed of carbon *per se*. Rather, Debe specifically states that "the chemical composition of the organic-based microstructured layer will be the same as that of the starting material" (col. 9, lines 12-14).

As discussed during the interview, applicants have amended claim 78 to recite that the carbon nanotubes are *graphitized* (i.e., they are truly carbon nanotubes rather than organic carbon-containing microstructures of the type taught by Debe). Because Debe fails to teach or suggest a baseplate having a *graphitized* carbon nanotube, Debe cannot anticipate claim 78. Therefore, the rejection of claim 78 is improper and should be withdrawn.

The rejection of claims 1-6, 9-26, 29-37, and 87-89 under 35 U.S.C. § 103(a) for obviousness over Ajayan in view of Chen et al., "Well-aligned Graphitic Nanofibers Synthesized by Plasma-Assisted Chemical Vapor Deposition," *Chemical Physics Letters* 272:178-182 (1997) ("Chen") is respectfully traversed as applied to claims 37 and 87-89, and new claims 90-108.

Ajayan is cited substantially as described above.

Chen reports the preparation of carbon nanotubes on a nickel wafer using mixed nitrogen and methane gases during plasma-assisted hot filament chemical vapor deposition (Chen, page 179, first column). During the nucleation stage, when plasma is generated, the substrate temperature reached 900-950 °C (*Id.*). During the fiber growth stage, substrate temperature was reduced to about 800 °C (*Id.*). Chen also notes that these temperatures are necessary, because "[n]o carbon fibers can be grown if the temperature drops below 900 °C in conventional CVD using methane as the carbon source" (Chen, page 182, first column).

Firstly, applicants submit that the teachings of Ajayan and Chen cannot be combined. As noted above, Ajayan involves the preparation of products having nanotubes "arranged" thereon by a solvent deposition process (that involves applying the solvent containing metal-filled nanotubes under magnetic field conditions). In contrast, Chen involves the formation of nanotubes directly onto a nickel wafer using plasma-assisted hot filament chemical vapor deposition. Thus, the processes involved in Ajayan and Chen relate to the formation of two very distinct products. Because the products themselves are very different and the techniques used to form those products are very different, one of ordinary skill in the art would not have been motivated to combine their teachings.

Secondly, applicants submit that properties of the substrate as recited in claim 37 is not an inherent feature of the substrates described in Chen or Ajayan. Applicants have already demonstrated above that the claimed strain point or melting point temperature range is *not* inherent in Ajayan. Ajayan simply fails to provide any basis for the conclusion that the substrates (described in Examples 11 and 12 of Ajayan) necessarily have a strain point or melting point temperature as claimed and the PTO has provided no evidence in support of its position. Chen actually teaches away from the use of a substrate having strain point or a melting point temperature between about 300°C and 700°C. Chen utilized a nickel substrate; it is well known that nickel has a melting point of about 1455 °C. The substrate temperature which Chen utilized in preparing the carbon nanotubes was about 900-950 °C during the nucleation stage (Chen, page 179, first column) and 800 °C during the fiber growth stage

(*Id.*). Chen also states that these temperatures are necessary, because "[n]o carbon fibers can be grown if the temperature drops below 900 °C in conventional CVD using methane as the carbon source" (Chen, page 182, first column). Given the process requirements of Chen, Chen fails to provide any motivation for modifying the process to allow its use on otherwise unsuitable substrates. Thus, both references fail to teach or suggest, either literally or inherently, the properties of the substrate.

Thus, one of ordinary skill in the art would not have chosen a substrate having a strain point or melting point temperature as recited in claim 37. As noted above (and recited in the present application at page 2, lines 21-30), high temperature requirements for previously reported methods of carbon nanotube formation had limited the choice of suitable substrates, particularly with regard to flat panel displays. The various glasses cited above have strain point temperatures of 666°C, 650°C, 518°C, 593°C, and 666°C (*see Id.* and attached Exhibits 1-4). Three of these exemplary glasses are intended for use in flat panel displays, and all of them meet the recited limitations of claim 37. If materials such as these were to be employed as substrates in the process of Chen, which utilized temperatures of about 900-950 °C during the nucleation stage (Chen, page 179, first column) and 800 °C during the fiber growth stage (*Id.*), then the glass substrate likely would have deformed, inhibiting aligned carbon nanotube growth. Thus, the process as taught by Chen would have been unsuitable for use in preparing a product as presently recited in claim 37 and claims 87-108 dependent thereon.

In view of the all of the foregoing, applicants submit that this case is in condition for allowance and such allowance is earnestly solicited.

Respectfully submitted,

Date: August 30, 2004

Edwin V. Merkel
Registration No. 40,087

NIXON PEABODY LLP
Clinton Square, P.O. Box 31051
Rochester, New York 14603
Telephone: (585) 263-1128
Facsimile: (585) 263-1600

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August 30, 2004
Date

Laura L. Sonneville

HOYA

HOYA CORPORATION USA

Specialty Glass and Components
PRODUCTS & SERVICES

Speciality Glass and Components

Overview

Flat Panel Display Glass

Fused Silica Wafers

Silicon to Glass Bonding Wafers

CCD / CMOS Cover Glass

Ultra-Thin Color Compensating Filter

Telecommunication WDM Substrate

Optical Glass and Lens Pressings

Ordering Information

Other Products & Services

Color Filter Glass

CUPO Glass Polarizer

Aspherical Lens

Fabrication Services

Coating Services

Document Library

NA-35/NA-40: LCD Display - Alumino Silicate Glass (NA-35 & NA-40)

NA-35

HOYA's NA-35 is an alumino silicate glass with excellent thermal characteristics. It displays minimal surface cloudiness from contact with fluoric acid and is ideal for device substrates requiring high deposition temperature or fine patterning, such as poly-Si TFT and EL.

Low Shrinkage

NA-35 exhibits lower thermal shrinkage in high temperature heat treatment, even when compared to borosilicate glass. The NA-35's softening point is at 650°C, so its stability in shape and measurement during extremely high heat treatment (~600°C) makes it ideal for substrates of devices that require high process temperatures and patterning accuracy. It also has superb heat resistant characteristics, due to its low CTE at ~37 x 10^{-7}/°C.

Minimal Cloudiness

The NA-35 is almost impervious to fluoric acid solution and exhibits minimal cloudiness when washing process using HF, NH_4F, HF-HNO_3, or HF-NH_4F.

Consistency

Our facility is designed to handle and monitor all aspects of glass making. We melt and form, anneal, cut and chamfer, polish and inspect, all in-house. Due to this streamlined manufacturing process, we are able to maintain a very low level of defects.

Features

- Low Shrinkage
- Minimal Cloudiness
- High Stability
- Diverse Functionality
- Non-Contact Drawn Formation
- Non-Contact Annealing
- No Surface Defects
- No SiO_2 Coating Needed
- Standard Thickness 0.70mm

Applications

- Flat Panel Displays
- Diode Liquid Crystal Displays
- Masks
- Sensors

Thermal Properties

	Value	Unit	Remarks
Coefficient of Thermal Expansion	37	x10^{-7}/°C	100-300°C
	39	x10^{-7}/°C	300-500°C
Strain Point	650	°C	$10^{14.5}$ poise
Transformation Point (T_g)	705	°C	

Sag Point (T_s)	775	°C	
Mechanical Properties			
	Value	**Unit**	**Remarks**
Specific Gravity	2.50		
Knoop Hardness	497	kgf/mm^2	
Young's Modulus	7160	kgf/mm^2	
Modulus of Rigidity	2890	kgf/mm^2	
Modulus of Volume Elasticity	4610	kgf/mm^2	
Poisson's Ratio	0.24		
Chemical Properties			
	Value	**Unit**	**Remarks**
HNO_3 Durability	0.04	mg/cm^2	A glass test piece, 4.37mm dia. (30cm^2 for both surfaces), ~5mm thick, polished on both sides, is immersed in a well-mixed aqueous solution of 30% HNO_3 at 80°C for 1 hour. Durability is measured by the weight loss per unit area.
HF Durability	0.5	μm/min	A polished glass test piece is immersed in a well-mixed solution of 5% HF at 25L C for 1 hour. Durability is measured by the depth of erosion per unit time.
Alkali Durability	0.02	mg/cm^2	A glass test piece, 43.7mm dia. (30cm^2 for both surfaces), ~5mm thick, polished on both sides, is immersed in a well-mixed aqueous solution of 0.01N NaOH at 50L C for 15 hours. Durability is measured by the weight loss per unit area.
Optical Properties			
Refractive Index (n_d)	1.516		
Abbe-Number (ν_d)	62		
Electrical Properties			
Power Factor	0.0007	tan	20°C 1MHz
Dielectric Constant	5.3		20°C 1MHz
Volume Resistivity at 20°C	22	x10^{16} Ω•cm	Thickness 1.23mm DC500V 1 min

Volume Resistivity at 200°C	43	$x10^{14}$ Ω•cm	Thickness 1.23mm DC500V 1 min

NA-40

NA-40, free from often detrimental elements such as Na_2O, K_2O and Li_2O, exhibits high temperature characteristics and chemical durability, meeting the demands of today's micro-electronics processes.

NA-40 is available in various thicknesses. Please contact us for more information.

Features

- **High Resistivity**
  Specific Resistivity: 2.0 x 10^{16}cm (20°C)
  1.0 x 10^{16}cm (200°C)
- **Low Expansion**
  Coefficient of Linear Thermal Expansion: 43 x 10^{-7} (100-300°C)
- **Excellent Durability for Chemical Solution Treatments**
  Durable for solution treatments under hostile chemical environments
- **Excellent Dimensional Stability for High Temperature Processes**
  Strain Point:
  656°C (Common borosilicate glass: about 510°C)
  Transformation Point:
  730°C (Common borosilicate: about 560°C)
- **Excellent Optical Homogeniety**
  Optical Glass Grade

Applications

- Substrate for various displays (LCD, EL, PDP), saw filters, stripe filters (video image tube), thin film sensors
- Substrate for vaious type coatings at high temperature
- Window used under hostile chemical environments
- Diversified uses for industrial and electronic equipments

Thermal Properties			
	Unit	**Value**	**Remarks**
***Coefficient of linear thermal expansion**	$x10^{-7}$/°C	43	100~300°C
	$x10^{-7}$/°C	35	-30~+70°C
***Transformation point**	°C	730	
Sag point	°C	770	
Strain point	°C	656	
Thermal Conductivity	cal/cm•sec•°C	0.0027	
Mechanical Properties			
	Unit	**Value**	**Remarks**
***Specific gravity**		2.87	

*Knoop hardness	kgf/mm^2	650	
Young's modulus	kgf/mm^2	9420	
Modulus of rigidity	kgf/mm^2	3730	
Poisson's ratio	kgf/mm^2	0.262	

Chemical Properties

		Unit	Value	Remarks
Powder Method	***Water durability**	Wt%	0.014	Powdered glass particle size 420-590μ at a weight equal to the specific gravity is placed in a platinum net basket and soaked in 80 ml pure water (pH6.5-7.5) contained in a fused silica flask. The glass is then boiled for 60 minutes. The percentage of weight loss is measured.
	***Acid durability**	Wt%	0.040	The same method as the water durability test except that a 0.01 N nitric acid solution is used.
Surface method	**Alkali durability**	mg/cm^2	0.05	The test piece of glass is 43.7 mm diameter (30 cm^2 for both surfaces) x 5 mm thick with both surfaces polished, and is soaked for 15 hours in a well-mixed 50°C 0.01 N NaOH solution. The percentage of weight loss per area is measured
	Acid durability	mg/cm^2	0.02	The same method as the alkali durability test except that the test piece is soaked for 25 hours in a 50°C 1.0 N HNO_3 solution.

Optical Properties

	Unit	Value	Remarks
Refractive Index (n_d)		1.574	at 587.56nm
Abbe-Number (ν_d)		55	at 587.56nm
Transmittance	nm		

Electrical Properties

	Unit	Value	Remarks
Dielectric constant		3.7	25°C 1 MHz
Dielectric loss	10^{-4}	13.2	25°C 1 MHz
Volume resistivity (20°C)	Ω•cm	1.60 x 10^{16}	Thickness 1.2mm DC 500V 1 minute
Volume resistivity (200°C)	Ω•cm	0.56 x 10^{16}	Thickness 1.2mm DC 500V 1 minute

*Denotes measurements based on Japan Optical Glass Industrial Society Standards.
Specifications are subject to change without notice.

Note: The listed data are standard value. Because of continuous product improvement, the various data listed are subject to change without notice.

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BOROFLOAT® Borosilicate Glass

Special Properties

- High temperature load capacity:
  - up to 450°C permanent load
  - up to 500°C temporarily (< 10h)
- Low thermal coefficient of expansion
- Thermal coefficient matches silicon (anodic bonding)
- High thermal shock resistance
- Clear practically colorless appearance
- Low flourescence
- High UV-Transmission
- High chemical resistance against acids, bases and organic substances
- Low alkali content in the glass composition
- Low specific weight

Typical Applications

- Substrates for dielectric coatings
- Lighting applications
- Optical filter coating substrates
- Wafer substrates
- Biotechnology
- Photovoltaics
- Environmental Technology
- Harsh Environments
- Neutron absorbers
- Measurement and Sensor-Technology

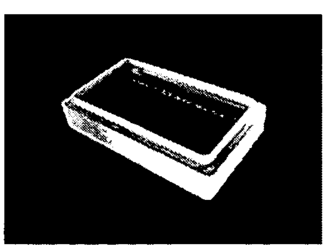

Fig.: CNC-manufactured, temperature resistant window made of borosilicate glass

Parts like this optical window for a micro reactor are economically made of borosilicate glass.

BOROFLOAT® glass has an excellent optical quality. Resulting from a special micro-float manufacturing process, the material shows a good flatness and surface quality. The material is very resistant against water,

Specifications*

Show Transmission Curve

Refractive Index

- n_d = 1,472 (588nm)

Density

- 2,20 g/cm^3

Coefficient of Thermal Expansion (20-300°C)

- 32,5 x 10^{-7}/K

Viscosity at different temperatures

Description	Viscosity (dPas)	Temp. (°C)
Working Point	10^4	1270
Softening Point	$10^{7,6}$	820
Annealing point	10^{13}	560
Strain point	$10^{14,5}$	518
Transformation Temp. Tg	-	525

Chemical Properties

- Hydrolytic Resistance (ISO 719-HGB) Class 1
  (ISO 720-HGA) Class 1
- Alkali Resistance (ISO 695-A) Class 2
- Acid Resistance (ISO 1776) Class 1

Electrical Properties

- Dielectric Constant 4,6
- Loss Factor tan d = 37 x 10^{-4}

neutral, saline and acidic solutions as well as to iodine, chlorine, bromine and organic substances even over long periods of time and at temperatures higher than 100°C. BOROFLOAT® exceeds chemical resistances of most metals and many other materials. The borosilicate glass is an ideal substrate for dielectric coatings and has shown to be a good choice for many different applications, particulary at high operating temperatures.

Standard Thicknesses

Tk.	**Tol.**	**Tk.**	**Tol.**
0,70mm	±0,1	7,5mm	±0,3
1,10mm	±0,1	8,0mm	±0,3
1,75mm	±0,2	9,0mm	±0,3
2,00mm	±0,2	13,0mm	±0,3
2,25mm	±0,2	15,0mm	±0,3
2,75mm	±0,2	16,0mm	±0,5
3,30mm	±0,2	17,0mm	±0,5
5,00mm	±0,2	18,0mm	±0,5
5,50mm	±0,2	19,0mm	±0,5
6,50mm	±0,2	21,0mm	±0,7

*Please consider the "Notes on technical specifications"

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Tel +49 (0) 2371-77679-0 • Fax +49 (0) 2371-77679-70 • info@pgo-online.com

Deutsche Startseite - English start page

7059 / 7059F
Barium-Borosilicate Glass

Typical Applications

- Low-Alkali Thin Film Substrate for Electronical applications
- LCD Technology
- Optical Windows
- Sensor Technology

7059 barium-borosilicate glass is a low alkali sheet glass with a good thermal shock resistance. The material has long been the standard of the electronics industry for thin-film circuits, which require special electrical properties. 7059F is fusion drawn into sheets at final thickness obtaining a flat smooth surface finish directly form the molten glass. 7059 is slot drawn and is not as smooth as the 7059F. Both materials have a low alkali level below 0,3%. This is important for many electronic application, because alkali ions are known to lower the performance, reliability and longevity of thin-film devices.

Specifications*

Show Transmission Curve

Refractive Index

- n_D = 1,5333 (589,3nm)

Density

- 2,76 g/cm^3 (20°C)

Young's Modulus

- 6,89 x 10^3 kg/mm^2

Coefficient of Thermal Expansion (20-300°C)

- 46,0 x 10^{-7}/ °C (0-300°C)
- 50,1 x 10^{-7}/ °C (25-598°C)

Viscosity

- Softening Point 844°C
- Annealing Point 639°C
- Strain Point 593°C

Electrical Properties

- Dielectric Constant 5,84 (20°C / 1 MHz)
- Dielectric Loss Factor 0,1% (20°C / 1MHz)

Standard Thicknesses			
Thicknesses	Tolerance	Thicknesses	Tolerance
0,4mm	±0,127	0,5mm	±0,127
0,7mm	±0,127	0,8mm	±0,127
1,1mm	±0,127	1,2mm	±0,127

*Please consider the "Notes on technical specifications"

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Deutsche Startseite - English start page

7059,7059F,barium borosilicate,near zero alkali,low alkali substrate,thin film substrate

1737
Low Alkali Glass

Special Properties

- Near zero alkali composition
- High thermal shock resistance
- Good flatness and surface quality
- Low thermal coefficient of expansion

Typical Applications

- Substrate for Filter or Mirror Coatings
- Thin Film Substrate for Electronical applications
- Active Matrix Flat Panel Displays (AMLCD)
- Electroluminescent Displays
- Optical Windows
- Sensor Technology

1737 glass is a near zero alkali alumino-silicate glass material with a high temperature and shock resistance. The material can withstand the rigorous cycles of the newer poly-silicon transistor processes. The special properties of this material besides its strain point of 666°C allow special manufacturing processes for various electronical components. The material has proven to be a good choice when used as an optical substrate for filter- or mirror coatings in many applications. 1737F is more durable than 7059 and has an even lower level of alkali than 7059. In most applications unannealed 1737F can replace even annealed 7059, resulting in a material cost savings to the user.

Specifications*

Show Transmission Curve

Refractive Index

- n_D = 1,5186 (589nm)

Density

- 2,54 g/cm^3 (20°C)

Young's Modulus

- 7,14 x 10^3 kg/mm^2

Coefficient of Thermal Expansion (20-300°C)

- 37,6 x 10^{-7}/ °C (0-300°C)
- 42,0 x 10^{-7}/ °C (20-671°C)

Viscosity

- Softening Point 975°C
- Annealing Point 721°C
- Strain Point 666°C

Electrical Properties

- Dielectric Constant 5,7 (20°C / 1 kHz)

Chemical Properties

Medium	5% NaOH	N/50 Na2CO3	5% HCL
Temp. (°C)	95	95	95
Reaction Time (h)	6	6	24
Weight loss (mg/cm^2)	1,1	0,13	0,45

Standard Thicknesses

Tk	Tolerance	Tk	Tolerance
0,4mm	±0,127	0,5mm	±0,127
0,7mm	±0,127	1,1mm	±0,127

*Please consider the "Notes on technical specifications"

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Deutsche Startseite - English start page

1737 and 1737 glass, are used in display glass applications, for thin film coatings. Also 1737F is a low alkali glass often used as lcd glass. The alumino-silicate glass ...